DOCUMENT RESUME

ED 360 992 IR 054 681

TITLE	Strategic Plan for Information Resources Management, FY 1993-97: Improving Education through Automation.
INSTITUTION	Texas Education Agency, Austin.
PUB DATE	93
NOTE	65p.
AVAILABLE FROM	Publications Distribution Office, Texas Education Agency, 1701 North Congress Avenue, Austin, TX 78701-1494 (initial free distribution to authorized institutions; additional copies $2 each).
PUB TYPE	Viewpoints (Opinion/Position Papers, Essays, etc.) (120) -- Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Access to Education; Cost Estimates; Decision Making; Educational Improvement; Educational Objectives; *Educational Planning; Educational Quality; Educational Technology; Elementary Secondary Education; Equal Education; *Information Management; *Public Education; *Statewide Planning; Strategic Planning; *Technological Advancement; *Telecommunications; Training; User Needs (Information)
IDENTIFIERS	*Texas

ABSTRACT

In support of educational excellence and equity, the Texas Education Agency views all state public education information resources and technology as strategic assets of the education enterprise. This plan is presented in support of the goals of enhancing instruction through technology, restructuring the data processing environment for administrative purposes, and developing end-use decision support capabilities in the client community. Information resource strategies are detailed in the areas of funding, developing technology, and implementing its use. Major ongoing initiatives include: (1) decision support; (2) operational support; (3) telecommunications; and (4) technology allotment. Major new initiatives are planned in the areas of technology support for instruction and restructured operational support through technology. Training for technology users is an important aspect of the plan. Cost estimates are made for implementation through 1997. Thirteen attachments in the form of figures and charts provide supplemental information about the strategic plans. (SLD)

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STRATEGIC PLAN FOR INFORMATION RESOURCES MANAGEMENT FY 1993-97

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Texas Education Agency
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FY 1993-1997

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STRATEGIC PLAN
FOR
INFORMATION RESOURCES MANAGEMENT
FY 1993-1997

CHAPTER 1 EXECUTIVE SUMMARY

Overview of Agency Information Resource Goals and Strategies 1
Major OnGoing Initiatives. 2
Major New Initiatives. 4
Plan Costs 5

CHAPTER 2 INTRODUCTION

Where We Have Been 6
Where We Are 6
Reorganization for the Future. 6
Impact of Agency Mission, Goals, and Objectives on Information Resources Management . . 7
Where We are Going 8
In Step with the State 9

CHAPTER 3 PLANNING FACTORS AND ASSUMPTIONS

Assumptions. 10
Planning Factors 10
Population Demographics. 11
School Finance 11
Technological Advancement. 11
Paradigm Shift 11
Technology Work Force. 12

CHAPTER 4 IR GOALS, OBJECTIVES, STRATEGIES, AND ACTION ITEMS

Background 13
Agency Strategic Planning and Budget Structure 13
Table A-1 - Statewide/Agency/IR Strategic Plan Summary. 21
Table A-2 - Agency Goals, Objectives, and Strategies for Public Education . 23

CHAPTER 5 ADDITIONAL INFORMATION RESOURCE OPPORTUNITIES

Innovation 26
Re-engineering 26
Staffing 26

CHAPTER 6 SUPPLEMENTAL INFORMATION

A. Agency's Current Information Resources Environment. 27
B. Policies and Practices 28
C. Methodology for Information Resources Planning . . 30
D. Configuration. 31
E. Telecommunications Infrastructure. 32
F. Interagency Network Participation. 32
G. Database(s). 33
H. Major Applications 36

ATTACHMENTS. 41

CHAPTER 1
EXECUTIVE SUMMARY

In the past decade, Texas, similar to national trends, has experienced an ever-widening gap between what students learn in school and what they must know to achieve as adults.

Texas must attain equity and excellence in student achievement. This means that all children attain the same standard outcome. The Agency is addressing these obstacles as a top priority for all Texans to obtain the equitable, efficient, and accountable system of public education required by the State Constitution. For the 1990's, the challenge confronting the Texas Education Agency is to close the achievement gaps; ensure that what students learn in school more closely parallels the knowledge and skills of the "real world"; and bring about equity and excellence in student achievement.

In support of excellence and equity, the Agency views all state public education information resources and technology as strategic assets of the education enterprise. The Agency has focused on the use of technology at all levels of the Texas public education system to:

- Enable convenient, efficient access to education services, information and databases throughout the education enterprise;
- Facilitate the electronic exchange of educational and administrative information;
- Improve the management of education-related operations and programs; and
- Enhance the ability of educators, administrators, and legislators to access essential information and make budget and program decisions based on the most up-to-date enterprise information available.

Overview of Agency Information Resource Goals and Strategies:

Agency Goal: The Texas Education Agency will facilitate the attainment of excellence and equity in student achievement for all students in Texas public schools.

Agency Strategy: Provide appropriate technology and support services which enhance student performance and promote the effective and efficient operation of schools.

Information Resource Goals:

- Enhance instruction by incorporating adequate technology into the methods of classroom instruction.
- Restructure the data processing environment for increased, effective data gathering by continuing to develop enterprise-wide systems of automation designed to facilitate the rapid electronic exchange of information among all levels of public education administrators and staff.
- Continue to develop end-use decision support capabilities in the client community through the implementation of distributed systems and information resource tools.

Information Resource Strategies:

- Promote the systematic acquisition, implementation and integration of instructional technology by providing supplementary funds through the Technology Allotment for every school district's five-year technology plan;

- Ensure the effective acquisition and employment of classroom instructional technology under the Technology Allotment Program;

- Establish statewide standards and guidelines for selecting, procuring, and installing instructional technology to include software evaluation and selection, network design, micro density ratios, staff development and technology training;

- Provide students and educators with convenient access to technology that emulates real world methods of inquiry, research, analysis and communication;

- Promote the continued delivery and expansion of common carrier telecommunication networks to provide electronic mail, bulletin boards, computer conferencing and access to remote and diverse educational materials to all educators and students;

- Promote the development, delivery and expansion of a dedicated, satellite telecommunications system which facilitates information exchange and program delivery among all Texas school districts via one-way video, two-way audio and broad-band digital communications;

- Design and specify a common, rapid system for data transfer and exchange between core databases;

- Develop standard methods and implementation procedures for channeling output through graphical user-interface technology;

- Establish policies that incorporate desktop review, evaluation and decision making into the daily operations and management of all levels of public education;

Major Ongoing Initiatives:

As reflected in previous plans, the Agency provides ongoing development and support of a variety of information technologies, and decision and operational support systems which include the following:

Decision Support:

Flexible access to data stored in the Agency's computer systems and access to the automated tools necessary for analyzing that information are provided through decision support systems. To help the state's decision makers, the Agency has installed a technically compatible and integrated combination of data management and access/analysis capabilities which include relational database management systems, query management tools for ad hoc report design and data analysis, and distributed software tools for multi-platform processing.

The key decision support component of the Agency's databases is the Public Education Information Management System (PEIMS). PEIMS' focus, as well as the Agency commitment for an enterprise data store, remains the focus for a strategic core of information in support of the local

education agencies, State Board of Education, Texas state government, the Agency, the education service centers, other educational entities and the federal government.

The Agency has increased the public's ability to utilize and access the PEIMS database through limited direct access to the mainframe as well as the development of standard software files, products and tools that are prepared and delivered to clients who process PEIMS information on a variety of technical platforms. In addition, the Agency continues to develop technical platforms and tools to facilitate analysis for decisions concerning student performance, and assistance in results based monitoring, the Academic Excellence Indicator System (AEIS), performance evaluation, program and trend analysis, modeling, accountability and accreditation.

Operational Support:

The Agency continues to develop operation support systems to leverage Agency personnel in the execution of recurring business functions. Through the application of relational database technology, on-line systems support capabilities, remote processing and client-server applications, operational support continues to improve. Among the ongoing Agency functional processes undergoing automation during this planning period are teacher certification and appraisal, the Permanent School Fund investment and accounting procedures, federal and state program financial management, human resource development, Agency budget and accounting and child nutrition.

Telecommunications:

Access to statewide telecommunications networks has rapidly emerged as one of the most critical strategic resource requirements. The Agency has continued to define and implement portions of a statewide network which will continue through this planning cycle. Components of the Agency's telecommunications strategy continue with the following projects: The Texas Education Network, (TENET), continues to be implemented throughout the districts of the state to provide electronic mail services, bulletin boards, teleconferencing, access to educational computer archives and instructional hypermedia libraries. TENET is also serving as the backbone data carrier for an increasing number of administrative applications such as teacher certification. The Texas School Telecommunications Access Resource (T-STAR) continues its process of implementation to expand telecommunications, via satellite, to link the Agency, school districts, and the ESCs for the purposes of distance education, teacher in-service, technical assistance and teleconferencing.

An additional improvement in the Agency's telecommunications capabilities is currently in progress with the continued expansion of the internal local area network (IBM Token Ring), and the replacement of the obsolete network operating system with Novell to facilitate increased internal capabilities and the development of client-server applications.

Technology Allotment:

During the 1992-93 school year, the Agency reviewed and approved school district technology plans to facilitate the funding of technology for students, teachers and administrators. This program will continue to expand to provide the introduction and utilization of instructional technology at the classroom and campus levels to improve student

performance. Appropriations for the technology fund were $30.00 per student during fiscal year 1993, with $27.00 per student actually funded for the fiscal year after proration. The fund will increase in $5.00 increments per student until 1996, when the fund will provide $50.00 per student for that and every year thereafter.

Major New Initiatives:

Technology Support for Instruction:

Enhance instruction by incorporating adequate instructional technology into the methods of classroom instruction.

Direct Instructional Support - Provide equitable access and exposure to the use of instructional technology in appropriate subject areas for all students.

Promote the systematic acquisition, implementation and integration of instructional technology by providing supplementary funds through the Technology Allotment for every school district's five-year technology plan.

Indirect Instructional Support - Identify, evaluate and promote generic software tools for classroom use by instruction providers as aids in curriculum development, classroom management, lesson preparation, and as basic data providers to PEIMS.

Restructured Operational Support:

Restructure the information technology environment for efficient data gathering and record keeping by installing an enterprise-wide system of automation designed to facilitate the electronic exchange of statistical information among all levels of public education administration and staff.

Fully Distributed Source Only Data Capture - Design and implement a standard methodology for source-level capture, edit and automatic electronic entry of essential data concerning the daily operations of public education.

Assure that source data capture is supported by a simple, easy-to-use, input system which eliminates paperwork, assures data validation, establishes an audit trail, and provides information security and protection for all data.

Data Integration and Structured Storage - Based on the premise that the campus, district office, education service center, and the Agency are the major levels for collecting and maintaining data, define the essential data for each organizational level and recommend standard relational structures for storing and maintaining this data.

Establish criteria which define essential operation data and the desired structural connectivity for each organizational level.

Informed Education Decision Makers:

Continue to train the end-use decision makers to become increasingly proficient in the design and maintenance of information tools in all major organizational units of public education.

Situational Monitoring and Evaluation - Use integrated database, graphically supported screen display technology and telecommunications combined with desk review techniques to monitor and support decisions for school operations, replacing paper media for transport and disposition of information.

Invest in information resources necessary to distribute desk review support to all decision-making staff at all levels of the education enterprise.

Progress Monitoring and Evaluation - Using the techniques employed in situational monitoring and evaluation, continually measure and evaluate progress in student achievement and school effectiveness and efficiency.

Invest in resources sufficient to incorporate distributed desk analysis and planning into the evaluation of school competitiveness and student achievement.

Plan Costs:

The cost to implement this plan through the next biennium is projected to be $25,442,524. This figure can be directly traced to the FY 1994-95 Legislative Request for Appropriations prepared and submitted by the Agency. The cost to continue plan implementation through the FY 1996-97 biennium is estimated at $28,726,275.

The by-year cost of implementing this plan is as follows:

FY	93	94	95	96	97
	$15,749,262	$12,661,262	$12,781,262	$14,165,722	$14,560,573

CHAPTER 2
INTRODUCTION

Where We Have Been:

In response to public insistence on greater accountability in public education and the subsequent school reform initiatives of the mid-1980's, the Texas Education Agency (TEA) embarked on a program to expand its information resource capability significantly. At the same time, TEA challenged local school districts to invest in automation as a means to better monitor and evaluate school operations and student progress. Between 1985 and 1992, substantial investment was made statewide in mini- and microcomputer technology. For TEA and large school districts, there was a corresponding investment in mainframe systems linked to distributed microcomputers in local area networks.

1993 marks the Agency's eighth year of a planned, long-term program to systematically engage information resources technology to support public education in Texas. The strategic information resources objectives contained in previous Agency long-range and strategic plans have been met. Although this is a noteworthy accomplishment, continued technological improvement is imperative. If the Agency is to effectively improve student achievement, instruction, and the educational environment at the classroom, campus, and school district levels, appropriate technology needs to be applied in all aspects of instruction, administration, and communication throughout the public education enterprise.

Where We Are:

Following the planned developmental path set forth in the January 1989 Long-Range Plan for Information Systems, TEA concentrated the greater part of its information resources activity on the balanced acquisition, installation, use, and expansion of mainframe and microcomputer technology within the Agency. This approach resulted in the creation of an integral technical environment consisting of a large, central computer system, a robust local area telecommunications network, a complement of nearly 1,000 networked and standalone microcomputers, and essential decision and operational support systems.

Together, these information resources form the technological infrastructure which enables the Agency to collect, store, manipulate, protect, and retrieve reliable information about statewide educational activity. The Agency has established a solid baseline technical environment and TEA's corporate databases have evolved into the most comprehensive, most-used source of public education information in the state.

Reorganization for the Future:

Near the end of FY 1991, the Commissioner of Education initiated a major reorganization. Structurally, TEA was reconfigured into a field-based, client-oriented, technical assistance organization. The Agency also assumed a new role which emphasized leadership and responsiveness to the

needs of school districts, campuses, and students. The new paradigm emphasized state-level leadership committed to a central goal: excellence and equity in student achievement. This model realigned TEA from overseer of the system's processes to hub of the public education wheel, a member in alliance with the local school districts. With excellence and equity in student achievement as its single goal, the Agency now focuses on its ultimate clients; the public school students of Texas.

Impact of Agency Mission, Goals, and Objectives on Information Resources Management:

The Agency's transformation from a state-level regulator of schools and compliance monitor to a field-based, client-oriented organization included a new mission: to provide the necessary leadership to improve instruction and the educational environment at the classroom, campus, and district levels. Accordingly, the following were developed as key elements of Agency strategic planning:

AGENCY GOAL: The Texas Education Agency will attain excellence and equity in student achievement for all students and learners in the Texas public schools.

OBJECTIVE: Raise the level of student achievement by providing and financing a public education system with substantially equal access to revenues and services so that, by 1998, 90% of all students meet or exceed identified student/learner outcomes.

STRATEGY: *Provide appropriate technology and support services which enhance student performance and promote the effective and efficient operation of schools.*

Agency reorganization coupled with a stated strategy to use technology to enhance student performance and school operations triggered a significant reorientation of the Agency's information resources management strategies. Architectural concerns of the past were replaced by an emphasis on promoting technology as a means to enhance student learning and improve organizational productivity and program effectiveness. With a new strategic direction which clearly established the linkage between information resource technology, student performance, and public school administration, TEA began to search for opportunities to take advantage of the operational leverage afforded by its installed technical environment. The new field-based, client orientation dictated that the strategic use of information resources technology be addressed in an enterprise context from the classroom to the state level, and that Agency information resources management focus outward as well as inward.

Where We are Going:

Crucial shifts in social attitude and the consequential change in public expectations now dictate that public education deliver, rather than simply offer, a quality, equitable education to all young students and needful adults. With everyone unmistakably included in the American Dream and the modern work place requiring more brain than brawn, free public education has lost the luxury of the seller's market where attendance was compulsory and learning voluntary.

The Agency's switch from accountability of process to accountability for the performance of students has amplified the need for reliable data. Performance is not only more difficult to gauge, but the huge numbers and variety of students to be measured make reliance on structurally integrated, electronic data essential. Thus, data-supported information has become critical to daily school operations, planning, and longer-term educational research.

Improved information systems, capable of exchanging data easily among the members of the state's public education network, are in heavy demand. Fortuitously, the state of technology has advanced to the stage where it is capable of responding to many of the new requirements in public education. More importantly, the emerging technology will deliver, from automated records systematically kept by machine, usable and useful information; on demand, quickly and comprehensively.

Technological development has greatly relieved the administrative burden of voluminous paper record keeping necessary in a diversified and volatile operation. Orderly and comprehensive record keeping benefits every level of decision-making activity. Ready access to reliable and accurate information is essential for efficient and effective school management.

The direct involvement of computers in the learning process is as important to improving student achievement as information systems are to improving the effectiveness and efficiency of school operations. Thus, three inclusive goals aim to anticipate and influence the future by calling for incorporation of the "thinking machine" into thinking development, reformation of the way data management is used to support school administration, and a restructuring of school administration itself as a result of time spent using answers in lieu of time spent searching for them.

With the current advanced state of computer technology--expanding by the week--and continuing public pressure for education to excel in the more sophisticated world of the 21st century, the objectives and strategies presented in this plan seek to lessen the burden of both educational and administrative tasks. In the process, the implemented plan would liberate the restraints of educating groups-in-unison and elevate the data in all those records to all important decision-supporting information.

This plan assumes that computers in the classroom can aid instructors in the duty of drill and knowledge dissemination, and provide needed time for teachers to develop every student's potential for independent thinking. In addition, it presumes that valuable teacher time can be acquired for attention to individuals and not lost on less effective guidance of the group functioning as one. Finally, the plan postulates that computers can directly assist the classroom teacher in the many lesson preparation tasks to an end of not only gaining valuable teaching time, but also to very much improve the presentation of the lesson. Bringing effective and sufficient computer, audio, and visual technology into the learning process is reflected in goal number one.

In assistance to school administration, this plan also assumes that the data used to operate the school are essentially the same data most needed to inform all levels of decision makers about student achievement and the performance of the school. The trick is to integrate the many data processing pieces technologically so as to serve both purposes. The thrust of IR goals two and three is to do just this.

<u>In Step with the State:</u>

The Agency's strategic plan embodies state-level support for the effective long-term use of information technologies throughout public education -- from the campus to the district to the state. The paradigm shift from legacy mainframe systems to end-user tools which make optimum use of distributed data is a key element of this commitment. The Agency is also making use of statewide telecommunications to support the use of information resources technology and will continue to do so. TENET and T-STAR are key examples of how statewide telecommunications can facilitate information use and exchange by all levels of public education. Augmented by a comprehensive statewide planning process which addresses the employment of technology at the classroom, campus, and district level, the Agency-administered technology fund is making possible cost-effective technology acquisitions for maximum benefit to service delivery. Moreover, the department's inclusion of school districts in large volume state purchasing programs helps make technology affordable.

The Texas Education Agency also strongly supports the state's strategy to ensure necessary connectivity among state information technology facilities through the migration to open systems.

CHAPTER 3
PLANNING FACTORS AND ASSUMPTIONS

Assumptions:

Agency information resources management is being used increasingly to support classroom instruction, school administration and educational decision making. As such, it is contingent on the policies, goals and objectives established for Texas public education. The key educational assumptions currently influencing information resources management are:

- The general welfare of the State of Texas is directly related to the quality and level of education of its citizens;
- Public demand for a state-supported education system focused on quality, equity and accountability will remain strong;
- Excellence and equity in student achievement will be achieved;
- Education will continue to focus on the educational results and less on the process of education to show improved student performance;
- The short-term focus of school finance caused by the ongoing state litigation will be resolved during this planning period;
- Future legislation will continue to provide the policy and financial support necessary to accomplish the goals and objectives of the Agency's strategic plan and this plan.

The underlying assumptions on which information resources management planning is based are closely aligned to the assumptions listed above. The planning assumptions for this strategic plan are as follows:

- The efficient management of information and related technologies is a fundamental Agency service essential to the achievement of excellence and equity in student academic performance;
- The operational leverage necessary to manage and maintain an equitable, accountable and performance-based system of public education can be obtained through the expanded use of information resources technology at all levels of the public education enterprise;
- Effective information resources management requires that all partners in public education participate in the planning process;
- Advanced technology responsive to public education needs will be affordable and available to all levels of the education enterprise as tools to improve student learning, measure academic achievement, and monitor performance and equity.

Planning Factors:

Several major factors beyond the direct control of the Agency could impact the successful implementation of this plan. Among these factors are changes in the demographic composition of both the public school classroom and the work force; legislative support and school financing; and the continuing developments in the information infrastructure of the state, as well as continuing advancements in information resources technologies.

Population Demographics:

The Texas population growth rate is decreasing, the median age of the population is increasing, and Texas is experiencing substantial growth in its ethnic minority populations. At the same time, the number of households with children in public education are expected to decline. This trend may suggest a steadily decreasing tax base to fund the state's system of public education.

Combined, these factors could affect the state's ability to maintain adequate funding for public education. Should funding support decrease, the Agency could find it difficult to sustain momentum in meeting the goals and information resource requirements over this planning period. Adequate funding is essential to acquire and maintain the information resources and technologies necessary to enhance the delivery of educational services, support research, and improve the management and administration at all levels of the public education enterprise.

School Finance:

The continuing uncertainty and short-term financial focus created by the ongoing school finance litigation may have major implications for the funding of information technologies. During the past planning cycles, as a result of ongoing lawsuits, there have been major revisions of state laws governing educational funding. An additional revision is expected during 1993 as the legislature attempts to find a solution to the equity funding issue.

At times deferring to these economic concerns, the Agency has not been able to fulfill completely its commitment to mission performance and goal accomplishment. Further, insufficient funds have been appropriated during the past four years to finance fully the information resource initiatives proposed. It is expected that the same funding challenges will be faced by the state throughout this planning cycle.

Technological Advancement:

Exponential advancements in information resources technology will continue throughout the 1990's. Decreases in the footprint and per unit cost of hardware are anticipated, as are increases in the speed and utility of hardware and software tools. At the same time, advances in hardware, software, and communications technology are shrinking the window of useful life of installed technologies. These events are resulting in increasing pressure from information resource clients to maintain this rapid advancement, thereby requiring the Agency to upgrade and/or replace obsolete information resource technologies at an increasingly aggressive pace.

Paradigm Shift:

End-user computing continues to evolve as hardware/software tools become available and is becoming the focus of the industry. End-users are the driving force in the evolution from the traditional controlled mainframe computing environment to the powerful, distributed platforms. Additionally, client demands to exchange and access data and communicate through electronic media that provides such features as electronic mail, community bulletin boards, voice, video and database services are accelerating the push to design, develop and implement advanced, seamless, telecommunications capabilities and services.

These trends continue to push the development of client/server architecture where flexible and "ease of use" software is distributed between and among multiple platforms. As these trends become reality, increasing demands for additional information resource capabilities and services will surface. Antiquated, mainframe legacy systems will give way to distributed data mobility, database to database exchange, and generic application development.

The cost to acquire and maintain information resource technologies can generally be expected to increase relative to the total operating budget as "downsizing" of personnel increases. Despite lower per unit hardware and software costs, the decreasing useful life of technology is expected to exert an upward pressure on the Agency's information resources budget.

Technology Work Force:

The information resource technology used in public education requires a technically competent work force, not only within the Agency, but at the region and district levels of education as well. New and more complex skills are required to install, operate and maintain an adaptable and flexible information resource architecture. As a result, there is an ongoing need to invest in human resources and this need will continue to increase.

To attract and retain qualified technicians, public sector compensation will have to stay competitive with private sector salaries. Over the past five years, state salaries have not kept pace with the wages paid to technicians in the private sector.

Progressive and continued employee training must be provided to keep pace with technological evolution as well as the changing demographics of the work force.

CHAPTER 4
IR GOALS, OBJECTIVES, STRATEGIES, AND ACTION ITEMS

Background:

The goals, strategies, and action plans of the Texas Education Agency are contained in a strategic planning and budget structure. This structure emerged as part of the major reorganization which became effective January 1, 1992 and was modified in September 1992. The Agency planning and budget structure is based on the corporate vision and strategic objectives of a restructured and more compact Central Education Agency; an organization which is not only leaner and more efficient than it previously was but is clearly focused on its ultimate clients -- the students of Texas.

To a much greater extent than in previous years, the current planning and budget structure integrates goals and strategies for information resources management with Agency goals and strategies for public education (**TABLE A-2**). The planning and budget structure expresses the extent to which information resources technology permeates every functional unit and operational process of the organization, thereby becoming an inextricable part of the organizational fabric. Accordingly, information resource technology supports every Agency strategy in one way or another. The planning and budget structure also reflects the Agency's future vision of a results-oriented public education system composed of world class schools which are heavily supported by appropriate technology and are capable of meeting the needs of the whole student by producing the learning outcomes needed for success in the world of tomorrow.

The information resource management goals and strategies contained in this plan were developed in alignment with the Agency's single goal of excellence and equity in student achievement, and a single strategy which establishes direct linkage between information resources technology, student performance, and effective schools. These goals and strategies are also linked to Agency business functions in order to focus information resources on the key value drivers that can improve internal Agency processes, impact internal and external customers, and enhance the Agency's ability to achieve its objectives.

Agency Strategic Planning and Budget Structure:

AGENCY GOAL: 01 — The Texas Education Agency will facilitate the attainment of excellence and equity in student achievement for all students in the Texas public schools.

OBJECTIVE: 01-01 — Raise the level of student achievement by providing and financing a public education system with substantially equal access to revenues and services so that, by 1998, 90% of all students meet or exceed identified student/learner outcomes.

STRATEGY: 01-01-04 *Provide appropriate technology and support services which enhance student performance and promote the effective and efficient operation of schools.*

IR GOAL 01: **Technology Support for Instruction** - Maximize effective instruction time by incorporating adequate technology into the methods of classroom instruction.

IR OBJECTIVE 01-01: Direct Instructional Support - Provide equitable access and exposure to the use of instructional technology in appropriate subject areas for all students.

STRATEGY 01-01-01: Support the systematic acquisition, implementation and integration of instructional technology by providing funds through the Technology Allotment for every school district's five-year technology plan.

STRATEGY 01-01-02: Implement a process for the development and evaluation of five-year technology plans for all school districts to ensure the effective acquisition and employment of classroom instructional technology under the Technology Allotment Program.

STRATEGY 01-01-03: Establish statewide standards and guidelines for selecting, procuring, and installing instructional technology to include software evaluation and selection, network design, microdensity ratios, staff development and technology training.

STRATEGY 01-01-04: Continue the consortium of public schools, higher education, businesses and industry to research, develop, and promote the effective use of applications for existing and new and emerging technologies in the K-12 environment.

STRATEGY 01-01-05: Establish regional preview centers that provide school personnel opportunities to preview and evaluate relevant instructional technology applications and courseware with assistance from education and technology experts.

STRATEGY 01-01-06: Provide students and teachers with convenient access to technology that emulates real world methods of inquiry, research, analysis, and communication.

IR OBJECTIVE 01-02: Indirect Instructional Support - Identify, evaluate, and promote generic software tools (i.e. spreadsheet, word processing, and database management applications) for classroom use by instruction providors and students supporting such processes as curriculum development, classroom management, lesson planning, and student assignment preparation.

STRATEGY 01-02-01: Provide the technical resources for desktop computing to all teachers throughout Texas public education.

STRATEGY 01-02-02: Train staff and students regarding the problem-solving potential and effective use of automated productivity tools.

IR OBJECTIVE 01-03: Technology Delivery - Install and implement interactive electronic communications infrastructure and educational programming throughout Texas public education.

STRATEGY 01-03-01: Promote the continued delivery and expansion of the Texas Education Network telecommunication network in order to provide electronic mail, bulletin boards, computer conferencing, and access to remote and diverse educational materials to all educators to establish a means for interaction between and among educational practitioners in the Central Education Agency, education service centers, school districts and other educational entitites.

STRATEGY 01-03-02: Promote the development, delivery, and expansion of a dedicated, integrated telecommunications system which facilitates information exchange and program delivery among all Texas school districts via one-way video, two-way audio, and broad-band digital communications.

STRATEGY 01-03-03: Implement methods and systems to adequately train all public school personnel in the operational use of new technologies.

IR GOAL 02: Restructured Operations Support - Restructure the data processing environment for efficient data gathering and record keeping by installing an enterprise-wide system of automation designed to facilitate the electronic exchange of statistical information among all levels of public education management and staff.

IR OBJECTIVE 02-01: Fully Distributed Source Only Data Entry - Design and implement a standard methodology for source-level capture, edit, and automatic electronic entry of essential data about the daily operations of public schools.

STRATEGY 02-01-01: Develop for statewide use, standard definitions of essential data used in the daily operation of schools.

STRATEGY 02-01-02: Specify the original source of data and identify each source data location relative to the integrated database at each organizational level (campus, district, and state) of public education.

STRATEGY 02-01-03: Provide for automatic data entry and editing at the source followed by immediate placement of the data into a local, integrated core database structure.

STRATEGY 02-01-04: At each major school organization, install a local area network to support data reporting and exchange.

STRATEGY 02-01-05: Assure that source data entry is supported by a simple, easy-to-use, input system which eliminates paperwork, assures data validation, establishes an audit trail, and provides information security and protection for all data.

IR OBJECTIVE 02-02: Data Integration and Structured Storage - Based on the premise that the classroom, campus, district office, and state Agency are the major levels for collecting and maintaining data, define the essential data for each organizational level and specify a standard nomenclature and relational structure for storing and maintaining the data.

STRATEGY 02-02-01: Establish criteria which DEFINES essential operational data and the desired structural connectivity for each organizational level.

STRATEGY 02-02-02: Define and specify the terms and editing criteria for the essential data, and design the structural configurations as established by the criteria for each of the organizational levels.

STRATEGY 02-02-03: Use commercially available database management systems to design the database and define the structural connectivity in such a way that a core database contains common information for strategic use yet allows for local non-strategic data additions and variations.

IR OBJECTIVE 02-03: Data Mobility, Database to Database Exchange - Design and build a data request and transfer system which includes automatic data extraction, pathways for express data delivery, and data placement for rapid data exchange between the core databases of each organizational level.

STRATEGY 02-03-01: Design and specify a commonly usable, rapid system for data transfer and exchange data between core databases.

STRATEGY 02-03-02: Develop a generic system for linking the cluster points, assuring that the transfer mechanism be complete and operational from the point of data extraction to the conclusion of the data placement in the receiving database.

IR OBJECTIVE 02-04: Generic Application Development; Paradigm Shift - Develop the data input, editing, management, and output application segments for maximum user control, system flexibility, and system life span using generic data management technology.

STRATEGY 02-04-01: Design and conduct pilot test programs to validate the feasibility of using generic, off-the-shelf data management software for application development instead of the traditional methodology now used for software development.

STRATEGY 02-04-02: Provide generic systems development training to school staff and include them in the application development process to test the feasibility and desirability of substituting self-sufficiency for traditional application program development.

STRATEGY 02-04-03: To the extent that generic development proves advantageous or undesirable for segments of the system, establish the criteria for the most effective and efficient use of other technologies.

STRATEGY 02-04-04: Complete the pilot program and leave for copy, emulation, or improvement a working model of the best method for managing and using education information.

IR OBJECTIVE 02-05: Graphics; Information Presentation and Comprehension - Employ the latest technology in graphical user interface to develop the most complete and malleable information output presentation capability possible.

STRATEGY 02-05-01: Develop standard methods and implementation procedures for channelling output through graphical user-interface technology in information system development projects.

While objectives 02-01 through 02-05 properly apply to all levels of data processing environments in the various organizations of public education, including the state Agency, large and long established environments must continue to change from traditional large systems to innovative methodologies and tools.

IR OBJECTIVE 02-06: Restructure the Established Data Processing Environment - Promote the transition of large, long-established, centralized applications development organization, from a traditional mainframe-dominated, controlled environment to an increasing data-directed, diverse and distributed environment.

STRATEGY 02-06-01: As necessary, construct interim utilities to merge certain limited, but critical, data resources into the enterprise database. As the top priority in new development, integrate the critical core data resources.

STRATEGY 02-06-02: Convert appropriate mainframe functions from application program processing to server operations where the output data resource preparation and presentation is done in the data directed, distributed application environment.

STRATEGY 02-06-03 Shift professional data processing staff work increasingly to assembling, installing, and maintaining basic software tools so that end-user application development is both facilitated and further distributed.

IR GOAL 03: Informed Education Decision Makers - Increase the capability of development and maintenance for end-use decision support applications from professional data processors to functional end-users (operational, tactical, and strategic).

IR OBJECTIVE 03-01: Situational Monitoring and Evaluation - Use integrated database and graphically supported screen display technology combined with desk review techniques to monitor school operations, replacing paper media for transport and disposition of statistical information.

STRATEGY 03-01-01: Establish policies that foster and incorporate desktop review, evaluation, and decision making into the daily operations and management of all levels of public school business.

STRATEGY 03-01-02: Invest in the system resources necessary to distribute desk review support to all decision-making staff at all levels of the education enterprise.

STRATEGY 03-01-03: Train public education staff at all levels of organization in the use of computer-supported desk review technology.

IR OBJECTIVE 03-02: Progress Monitoring and Evaluation - Using the techniques employed in situational monitoring and evaluation, continually measure and judge progress in student achievement and school effectiveness and efficiency.

STRATEGY 03-02-01: Establish policies incorporating desk analysis and planning into the evaluation of school competence and student progress.

STRATEGY 03-02-02: Invest in resources sufficient to incorporate distributed desk analysis and planning into the evaluation of school competence and student progress.

STRATEGY 03-02-03 Cultivate the use of desk analysis and planning tools within all ranks of decision-making personnel in education, including top level management.

IR OBJECTIVE 03-03: Performance Accountability - Apply presentation graphics and computer publication technology to the techniques of desk review, analysis, and planning, thereby combining the statistical power of educational databases with articulate presentation capabilities.

STRATEGY 03-03-01: Invest in presentation technology that makes optimal use of statistical information to best articulate the state of public education in the most persuasive manner possible.

STRATEGY 03-03-02: *Train education personnel, including senior* managers in the value and use of statistical data and forms of effective presentation of information.

TABLE A-1 STATEWIDE/AGENCY/IR STRATEGIC PLAN SUMMARY

AGENCY GOALS OBJECTIVES & STRATEGIES [1]	AGENCY IR GOALS OBJECTIVES & STRATEGIES	STATEWIDE IR STRATEGIES [2]
Goal 01	Goal 01	
Strategy 01-01-04	Objective 01-01	
	Strategy 01-01-01	State Strategy 1
	01-01-02	1
	01-01-03	1,5
	01-01-04	1,3
	01-01-05	1,3
	01-01-06	1
	Objective 01-02	
	Strategy 01-02-01	1
	01-02-02	6
	Objective 01-03	
	Strategy 01-03-01	2
	01-03-02	2
	01-03-03	6
	Goal 02	
	Objective 02-01	
	Strategy 02-01-01	4
	02-01-02	4
	02-01-03	4
	02-01-04	2,4
	02-01-05	4
	Objective 02-02	
	Strategy 02-02-01	4
	02-02-02	4
	02-02-03	3

[1] Texas Education Agency Strategic Plan for the 1992-1998 Period, April & June 1992
[2] State Strategic Plan for Information Resources Management, Department of Information Resources, November 1991

TABLE A-1 STATEWIDE/AGENCY/IR STRATEGIC PLAN SUMMARY

AGENCY GOALS OBJECTIVES & STRATEGIES [1]	AGENCY IR GOALS OBJECTIVES & STRATEGIES	STATEWIDE IR STRATEGIES [2]
Goal 01	Objective 02-03	
Strategy 01-01-04	Strategy 02-03-01	State Strategy 3,4
	02-03-02	2,3,4
	Objective 02-04	
	Strategy 02-04-01	3,5
	02-04-02	3
	02-04-03	5
	02-04-04	5
	Objective 02-05	
	Strategy 02-05-01	3
	Objective 02-06	
	Strategy 02-06-01	7
	02-06-02	3,7
	02-06-03	6
	Goal 03	
	Objective 03-01	
	Strategy 03-01-01	6
	03-01-02	5,7
	03-01-03	6
	Objective 03-02	
	Strategy 03-02-01	6,7
	03-02-02	6,7
	03-02-03	6,7
	Objective 03-03	
	Strategy 03-03-01	5,6
	Strategy 03-03-02	5,6

[1] Texas Education Agency Strategic Plan for the 1992-1998 Period, April & June 1992
[2] State Strategic Plan for Information Resources Management, Department of Information Resources, November 1991

TABLE A-2 TEXAS EDUCATION AGENCY STRATEGIC PLANNING AND BUDGET STRUCTURE

AGENCY GOALS, OBJECTIVES, AND STRATEGIES FOR PUBLIC EDUCATION

AGENCY GOAL: 01	The Texas Education Agency will attain excellence and equity in student achievement for all students and learners in the Texas public schools.
OBJECTIVE: 01-01	Raise the level of student achievement by providing and financing a public education system with substantially equal access to revenues and services so that, by 1998, 90% of all students meet or exceed identified student/ learner outcomes.
STRATEGY: 01-01-01	Support the development and implementation of a sound school finance system, disburse Foundation School Program formula funding to school districts, and ensure that formula allocations are accounted for in an accurate and appropriate manner.
STRATEGY: 01-01-02	Adopt and distribute textbooks to ensure that students have equitable access to instructional materials.
STRATEGY: 01-01-03	Provide leadership and support needed by campuses/ districts to implement practices that will fundamentally revise the way we approach learning for all students and enable each student to meet or exceed anticipated levels of performance.
STRATEGY: 01-01-04	*Provide appropriate technology and support services which enhance student performance and promote the effective and efficient operation of schools.*
OBJECTIVE: 01-02	Raise the level of student achievement by attracting and retaining qualified and demographically representative public education work force so that, by 1998, 95% of the teachers are certified and competitively paid and school district staff demographics represent those of the student body.

STRATEGY: 01-02-01	Develop and implement a plan to fundamentally revise the way we approach teaching, increase the number of certified teachers, increase the number of minorities in the education profession, respond to specific teacher shortages, and increase the number of teachers available in rural and inner city areas.
STRATEGY: 01-02-02	Design and implement a professional development system that builds knowledge, skills, and attitudes necessary to achieve excellence and equity at campus, district, region, and state levels.
OBJECTIVE: 01-03	Raise the level of student achievement by increasing the efficiency and effectiveness of schools so that, by 1998, the number of districts rated exemplary or recognized increases to 20% of the total and the number of low performing districts decreases 20% of the total.
STRATEGY: 01-03-01	Derive, promote, and implement measurable learning outcomes which define students/learners as independent and productive citizens.
STRATEGY: 01-03-02	Evaluate and report the extent to which students/learners are attaining measurable learning outcomes and the extent to which the state is meeting planned objectives.
STRATEGY: 01-03-03	Develop and implement a comprehensive accountability system which targets excellence and equity, measures attainment of learning outcomes, and promotes effective educational practices and reforms.
OBJECTIVE: 01-04	Raise the level of student achievement by ensuring that, by 1998, 100% of student/learners have adequate access to support services needed to ensure that students come to school ready to learn and stay in school.
STRATEGY: 01-04-01	Act as a catalyst and develop programs for the provision of family and community support needed for student success in school.

OBJECTIVE: 01-05	Increase access to post-secondary education and/or employment opportunities for all Texans regardless of age so that by 1998, 100% of the Texas population who left school before graduating will have access to educational opportunities needed for literacy, citizenship, job training, and life skills; and 85% will have completed a free secondary education and achieved either a high school diploma or equivalency credential.
STRATEGY: 01-05-01	Build an equitable adult education and literacy program within the total school system, including Windham Schools, based on adequate funding, effective instructional and support services, a qualified and trained work force, and a comprehensive information system for accountability.
OBJECTIVE: 01-06	Increase program effectiveness so that, by 1998, there will be a 6% increase in proprietary school completers being employed as a result of their training, an 8% increase in driver training school completers who demonstrate a safe driving record, and a 7% increase in performance in veterans programs.
STRATEGY: 01-06-01	Develop and implement procedures and rules to administer the requirements of the Texas Proprietary Schools Act, Texas Driver and Traffic Safety Education Act, and the contract with the U. S. Department of Veterans Affairs.

CHAPTER 5
ADDITIONAL INFORMATION RESOURCE OPPORTUNITIES

A. Innovation:

Improve information exchange through the full implementation of TENET and T-STAR to expand the capabilities of local education agencies to receive and exchange data.

Develop and fund PEIMS 2 to move data capture to the classroom level and merge the functions of instructional technologies with classroom administration.

Implement imaging and other technologies where appropriate to allow document processing to become more efficient and effective.

B. Re-engineering:

Continue to fund and explore the move away from traditional mainframe technologies to multiple platforms and client-server applications. This would allow a greater client base to access and utilize the large base of data resident in the mainframe computer.

C: Staffing:

Continue to staff technology support services to allow re-engineered applications to be effectively supported.

CHAPTER 6
SUPPLEMENTAL INFORMATION

Agency's Current Information Resources Environment

A. Organization and Personnel

The Agency information resource management responsibility is under the authority of the Associate Commissioner for Technology Applications. The Executive Deputy Commissioner for School Support Services provides general policy and direction for Agency information resources management. However, the Commissioner retains executive oversight responsibility for all Agency technical support including information resources management.

The Associate Commissioner for Technology Applications is the Agency Information Resources Manager (IRM). The Associate Commissioner directly supervises all information and technology services of the Agency. The Associate Commissioner's primary functions include oversight for the development and use of technology applications within the Agency and in Texas public schools; coordination and management of special project teams of information and technology specialists; Agency-wide planning (strategic and operational) concerning technology and information resources management; and oversight and coordination of the security administration, quality assurance and standards, and technology research functions to include associated functional committees.

The Department of Technology Applications consists of the Office of the Assistant Commissioner which includes a planning and coordination unit, and five divisions. Each of these organizational divisions is described below.

Operations

The Operations Division operates and maintains the mainframe computer system and associated peripherals. In addition, Operations exercises production control for mainframe systems and provides key entry services.

Systems Support

The Systems Support Division installs and maintains mainframe and microcomputer systems software and technologies; provides local and wide area network connectivity support; accomplishes system performance monitoring and capacity management; and provides technical support to the Information Systems Management and Computer Operations Units.

Information Systems Management

This Division provides service support for the analysis, design and development of information systems for use by the Agency. Specific functions include systems analysis and design, piloting and testing new systems and associated databases and systems quality and integrity assurance.

Technical Support

The Technical Support Division provides training, customer assistance, technical documentation services, data collection, data standards, mainframe support, ad hoc report writing and other support functions in the effective use of technology. This division serves as the primary

point of contact for client support. Support services include a help desk, problem documentation, technical writing, coordination of technology training and development of ad hoc reports based on Agency internal and external requests.

Technology Services

The Technology Services Division provides support to clients in the use of technology and information services both within the Agency and in the education service centers and public schools. This division establishes and manages major technology infrastructures and services on behalf of both internal and external clients. In addition, it provides planning and general support to schools in the use of technology. The division also provides management, applications, and services to the Texas Education Network (TENET) and Texas School Telecommunications Access Resource (T-STAR); coordinates with education service centers in providing and supporting Technology Preview Centers and other services for schools; coordinates technology research efforts with the Texas Center for Educational Technology, the Centers for Professional Development and Technology and others.

Planning and Coordination

The Planning and Coordination unit consists of a coordinator, planners, special project analysts and database administrators. This unit is responsible for strategic and operational planning, special projects as requested, contingency planning, security, database administration and general departmental coordination.

Staff Skills: See Attached

This inventory shows, by job title, the skills required and skills available. Available skills represent the required skills for the full-time employee assigned in the units comprising the Agency's composite technical environment.

B. Policies and Practices

- Method of setting priorities

Priorities are set by the management of the Agency from the following directives:

Priority 1: Those activities mandated by the Legislature, State Board of Education or other governmental entity

Priority 2: Those activities and/or projects directed from the Commissioner of Education or the Commissioner's Cabinet

Priority 3: Specific areas where monies are available to fund the project

- Staff Training and Continuing Education

General training and staff education for each fiscal year are developed and approved during each budget preparation. In the past few years, the training budgets have decreased in the technology areas due to fiscal shortages. As a result, priority has been given to those essential training elements required to meet operational requirements which has decreased research and development training efforts in new technologies.

- Standards

The Agency operates its technical environment with internally developed standards and procedures. Since the reorganization in January 1992, the Agency is still in the process of revising all of the internal operating procedures, processes and standards.

- Security

The Agency operates physical, as well as logical security for its technical environment. The physical security restrictions are at the building level, as well as the computer room. A new restricted access security system has been installed at the first and ground floors of the William B. Travis building. An encoded pass card is required to gain entry to the building after normal working hours. An individual seeking access after hours must either possess one of these cards or gain entry through the Capitol Police. There is also a coded lock system on the mainframe computer room where the mainframe, tape cartridge units and DASD are housed. There is a very controlled list of individuals who may gain entry to this area, and it is staffed twenty-four hours a day.

The logical security for the information resources of the mainframe is controlled through the use of IBM's Resource Access Control Facility (RACF). To gain entry to the mainframe computer, an individual must gain approval from the security administrator who approves and establishes access for each individual through a series of profiles. The Agency has established procedures for access to the mainframe, as well as confidential and restricted data.

- Disaster Recovery

The Agency subscribes to disaster recovery planning and has a certified disaster recovery planner on staff. Computer contingency planning was formally initiated in September 1990. Early in 1991, a comprehensive risk analysis was completed. This led to the policy decision to employ a cold site recovery strategy relying on the state Disaster Recovery Operations Center (DROC) as the Agency's primary alternate recovery facility.

TEA uses an automated disaster recovery planning package. Disaster Plan 90 (DP/90) was used to generate and customize the Agency's first Disaster Recovery Action Plan. DP/90 is a proprietary methodology and microcomputer-based expert system software tool acquired from EDP Security, Inc. (now SUNGARD Planning Solutions, Inc.) under a state licensing agreement.

The disaster recovery strategy adopted by the Agency in 1991 calls for the use of the State Disaster Recovery Operations Center (DROC) as the Agency's cold site backup recovery facility. This strategy is the only feasible contingency option available to TEA at the present time in that funds have not been budgeted for contract recovery services.

- Use of Computing Resources

The policy of the Agency is to make information resources available to all clients with a clearly justified need for the service and/or tool for the course of their job duties. The Agency does not charge internal divisions for the use of technologies; however, the Agency division's are charged for all development services.

The Agency is increasingly responding to requests from the legislature, other agencies, and other educational entities for the use of the Agency's mainframe computer. As a result, the Agency will continue to investigate the most appropriate methods to allow information access while recapturing costs.

- Use of Contract Services and Consultants

Contract services for programmers and analysts are generally bid and contracted on an annual basis. Contractors are used to leverage Agency staff for major development efforts.

- Use of Computer Aided Software Engineering (CASE) tools and methodology

Currently, the Agency does not use CASE tools. Ongoing study, demonstrations, and evaluation of case tools continue to be performed.

The Agency is beginning to move into client-server technologies and is approaching this development via the JAD/RAD and prototyping methodologies.

- Geographic Information Systems (GIS)

The Agency is actively pursuing GIS opportunities in conjunction with the legislature at this time. The Agency continues to participate in the statewide planning sessions and is investigating possible additional educational GIS opportunities.

- Open Systems

The Agency continues to pursue the statewide directive for GOSIP compliance.

C. Methodology for Information Resources Planning

In September 1991, the Agency organized a committee to assist in formulating a new strategic planning perspective for the application and management of information resources technology in public education. Comprised of representatives from all of the Agency's major functional areas and participants from three of the Regional Education Service Centers, this committee was given three primary objectives:

- To develop a mid- to long-range vision of the strategic uses of information and information resources technology to support Texas public education;

- To identify and define the major information resource strategies necessary to realize that vision; and

- To identify specific information resource requirements or projects which would need to be addressed within the five-year strategic planning period to implement the strategies and achieve the desired outcomes.

This strategic planning committee will be reconvened during this planning cycle to update this document.

D. Configuration

Hardware:

The Agency's computer hardware environment is based on IBM technology for the bulk of the infrastructure. It consists of two major areas: an Amdahl 5890-300E mainframe computer with associated peripheral equipment, and over 1000 networked and stand-alone microcomputers.

See attached.

Software:

The Agency's mainframe software environment is comprised of components designed to run on large IBM or compatible computers. The major system software components include the MVS/ESA operating system with job entry subsystem JES2; the DB2 relational database management system; the QMF query management facility; the Customer Information Control System (CICS) and CA-IDEAL program development and production environment; Remote Operating System - Conversational Operating Environment (ROSCOE); and the Statistical Analysis System (SAS) for ad hoc reports; data analysis and data modeling.

System #1: Amdahl 5890-300E

Operating System: MVS/ESA 4.2 with JES2

Database Management Systems: DB2 2.3, Model 205, TOTAL

User Access Tools: Query Management Facility (QMF)
Statistical Analysis System (SAS)
ROSCOE - Conversational Operating Environment

Application Environment: CICS with CA/IDEAL (4GL)

System #2: IBM RISC/6000

Operating System: AIX

Application Environment: HCON (Host Connect) + SNA Services + TCP/IP to provide TCP/IP to SNA Connectivity

System #3: IBM/Clone Microcomputers - Approximately 980

Operating System: DOS 3.x to 5.0
Windows 3.1 (limited)
OS/2 (experimental)

Database Mgrs.: RBase
Dbase III
Revelation
FoxPro

Application Env.: As provided by DBMS systems

System #6: Macintosh PCs - Approximately 300

Operating System: System 6.x to 7.x

Database Mgrs.: FoxBase, Hypercard

Application Env.: As provided by DBMS systems

E. Telecommunication Infrastructure

Token-Ring PC/LAN network with 4 sub-networks. One remote bridge via T1 line to Hartland Plaza, total 450 connections. TCP/IP connections available to all workstations, but installed on only approximately 100 workstations.

Six Appletalk networks with 150 connections. Three Shiva Fastpath connections to Ethernet for TCP/IP connection.

TENET.EDU (sub-contracted to University of Texas at Austin) provides TCP/IP access to the Internet world. This enables Agency staff access to most school districts through the E-mail application of TENET. Twenty certification professionals housed at education service centers access the Agency's mainframe via TENET and the RISC/6000-AIX-HCON system.

F. Interagency Network Participation

The Agency is a full participant in the Comptroller's SNA/SNI network. From the Agency's main application menu, Agency staff can directly access the FACTS application at the Comptroller and the ABEST application at the Texas Legislative Council, as well as USAS.

In addition the Governor's Office, the LBB, the LEB and others have access to the Agency mainframe. An LU 6.2 connection to DPS is planned, and conversion of the backbone from lease lines with 19.x modems to FDDI is being piloted.

G. DATABASE(S)

The Agency has adopted the concept of an integrated enterprise database. This allows data to be related through standard definitions and coding schemes. Stored in a relational database management system, presently DB2, each type of data in the enterprise database is a single authoritative source of information.

Name:	**Audit System (AUD)**
Software:	Model 204
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	Batch Update/On-line Inquiry
Description:	This database contains data from independent audits of Texas Public Schools.

Name:	**Compensatory/Bilingual/Migrant (CBM)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	On-line Update/Inquiry
Description:	This database facilitates the approval and tracking of applications for Chapter 1, Chapter 2, and Migrant federal funds and the timely distribution of those funds to local education agencies.

Name:	**Certification (CRT)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	On-line Update/Inquiry
Description:	Information related to the certification and permit status of over two million individuals qualified to teach in Texas schools.

Name:	**District Database (DST)**
Software:	TOTAL/M204/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	Batch & On-line Update/Inquiry
Description:	Information related to school districts and campuses.

Name:	**Education Material Acquisition (EMA)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	On-line Update/Inquiry

Description:	Information supporting textbook ordering, shipment, and payment as well as the maintenance of state and school district textbook inventories.
Name:	**Educational Visually Handicapped (EVH)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	On-line Update/Inquiry
Description:	Information supporting textbook ordering, shipment, and payment as well as the maintenance of inventories for the visually handicapped.
Name:	**Facilities (FAC)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	On-line Update/Inquiry
Description:	Information related to the school grounds and buildings of schools in Texas.
Name:	**Financial Accounting System (FAS)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	Batch Update/On-line Inquiry
Description:	This database contains district budget and actual financial information.
Name:	**Foundation School Program (FSP)**
Software:	TOTAL
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	Batch Update/Inquiry
Description:	This database contains data used in the computation of school district entitlements to state funds under the Foundation Schools Program, and the distribution of those entitlements to the local education agencies.
Name:	**General Education Degree (GED)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	On-line Update/Inquiry
Description:	A database under development which will contain information on persons pursuing a GED certificate.

Name:	**Investments (INV)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	On-line Update/Inquiry
Description:	The investments database contains data necessary to manage stock, bonds, securities and real estate investments of the Permanent School Fund.

Name:	**Personal Identification (PID)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	Batch Update/On-line Inquiry
Description:	This database will become the single authoritative source of demographic data on persons. Certificated and permitted teachers, current students and people taking college placement teacher tests are integrated into this database. GED recipients will be added in the near future.

Name:	**School District Staff (STF)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	Batch Update/On-line Inquiry
Description:	Contains employment and payroll information for all school personnel and daily responsibilities of administrators, teachers and educational aides.

Name:	**Student Information (STU)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	Batch Update/On-line Inquiry
Description:	Contains information about students attending Texas public schools.

Name:	**Teacher and College Placement Testing (TCT)**
Software:	Ideal/DB2
Hardware:	Amdahl Mainframe
Location:	Central Office
Batch/On-line Status:	On-line Batch/Inquiry
Description:	Contains standardized test scores for teachers and college students.

H. MAJOR APPLICATIONS

Application Name:	**PEIMS Edit/Load System**
Software:	**CA-IDEAL**
Hardware:	**Amdahl 5890**
Location:	**Technology Applications/TEA**
Batch/On-line Status:	**Batch**
Application Description:	**The PEIMS Edit/Load System includes components on both micro and mainframe computers. Through this system, school district data submission are logged, loaded, edited, formatted, and merged into a central relational database. Data which refers to individuals is matched to the Person Identification Database (PID) to verify districts' demographic data and update the PID. Detailed information is also aggregated and loaded to the central database in summarized form.**

Application Name:	**Educational Materials Distribution/Textbooks (EMAT) Order Entry System**
Software:	**CA-IDEAL**
Hardware:	**Amdahl 5890**
Location:	**Technology Applications/TEA**
Batch/On-line Status:	**On-Line and Batch**
Application Description:	**The core of this system supports state procurement and delivery of textbooks. It provides automated requisition, distribution, inventory, and payment capabilities for state-owned textbook management.**

Application Name:	**Educational Materials Distribution for the Visually Handicapped (EVH) Order Entry System**
Software:	**CA-IDEAL**
Hardware:	**Amdahl 5890**
Location:	**Technology Applications/TEA**
Batch/On-line Status:	**On-Line and Batch**
Application Description:	**The core of this system supports the procurement and delivery of braille and large type textbooks for the visually handicapped. It provides automated requisition, distribution, inventory, and payment capabilities.**

Application Name:	**Teacher Certification (CRT)**
Software:	CA-IDEAL
Hardware:	Amdahl 5890
Location:	Technology Applications/TEA
Batch/On-line Status:	On-Line and Batch
Application Description:	This application supports the state teacher certification and permit application process. In addition, the Agency provides remote access from regional education service centers to the permit processing portion of this application.

Application Name:	**Financial Management System (FMS)**
Software:	COBOL
Hardware:	Amdahl 5890
Location:	Technology Applications/TEA
Batch/On-line Status:	Batch
Application Description:	FMS is a very large, complex system for fund accounting and fiscal grant management. Because of its many interfaces to other applications and the affect the Agency's new technical environment has had on operating efficiency, FMS has been a candidate for redesign and integration into a comprehensive financial management system. Funding was requested in the Agency's FY 90-91 and FY 92-93 Legislative Appropriations Requests (LARs) to prepare an operational plan for system development and to proceed with system design and installation. Neither request was favorably considered.

Application Name:	**Federal Funding Program (FFP)**
Software:	SAS, COBOL
Hardware:	Amdahl 5890
Location:	Technology Applications/TEA
Batch/On-line Status:	Batch
Application Description:	This system is small in size, but is used to calculate local education Agency entitlements to three federal operating funds (Chapter 1, Chapter 2, and Migrant) totaling more than $250 million.

Application Name:	**Federal funds tracking and cash advance for Compensatory, Bilingual and Migrant funds (CBM)**
Software:	CA-IDEAL
Hardware:	Amdahl 5890
Location:	Technology Applications/TEA
Batch/On-line Status:	On-line
Application Description:	Automation of the federal funding program for Chapters 1, 2, and Migrant Federal funds in support of Compensatory/Bilingual/Migrant special education occurred in FY 90.

Application Name:	**Foundation School Program (FSP)**
Software:	COBOL
Hardware:	Amdahl 5890
Location:	Technology Applications/TEA
Batch/On-line Status:	Batch
Application Description:	FSP is a large system used to distribute billions of state dollars to school systems. Its primary use is to compute the amount of money the state should provide to school districts. FSP does not interface well with the current Financial Management System (FMS), and no longer meets Agency needs. FSP is a candidate for redesign in the FY 1991-95 planning period.

Application Name:	**On-Line Securities Control, Analysis and Reporting System (OSCARS)**
Software:	COBOL
Hardware:	Amdahl 5890
Location:	Technology Applications/TEA
Batch/On-line Status:	On-Line and Batch
Application Description:	The proprietary OSCARS is presently used by the Agency to support financial securities management and accounting operations for the $5 billion Permanent School Fund. OSCARS is a large and complex system with over 500 programs and a database of approximately 500,000 records. OSCARS does not have sufficient features to accommodate expanded investment strategies or changes in law now encountered by the Agency; however, nor does it provide for future growth and diversification.

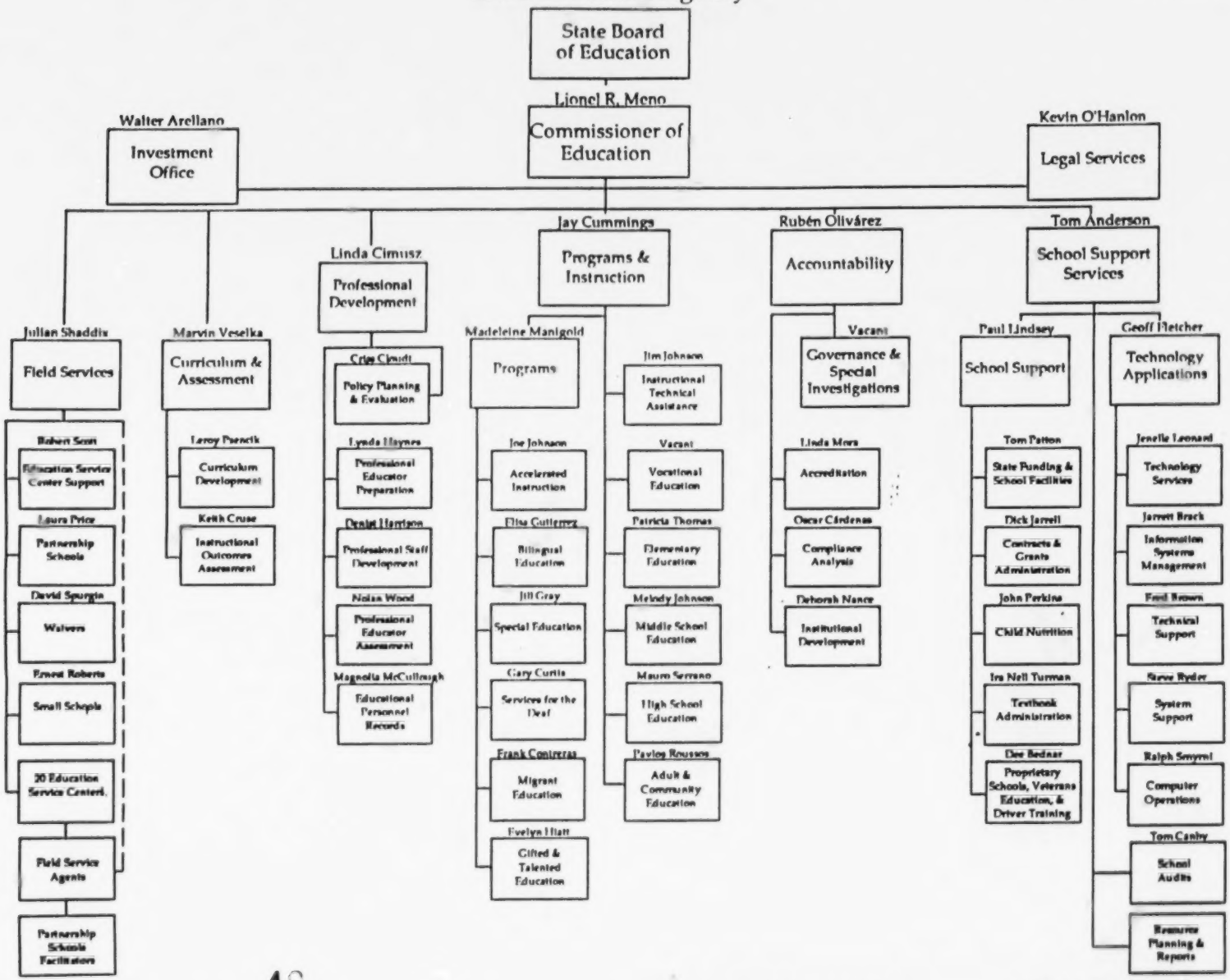
With funding approved in the amount of $850,000 in the FY 92-93 biennial budget, the Agency Investments Office is in the latter stages of a project to replace the current investment and accounting "system" with a comprehensive capability which completely automates and unifies the Permanent School Fund investment accounting process.

Application Name:	**Personnel/Payroll System (EDS)**
Software:	COBOL, SAS
Hardware:	Amdahl 5890
Location:	Technology Applications/TEA
Batch/On-line Status:	Batch
Application Description:	This system receives a payroll tape from the General Services Commission payroll system to produce payroll reports and update Agency budget files. It also contains personnel history and group insurance data. Many of the approximately 250 programs have been modified to accommodate changes in computing requirements. The Agency has acquired a personal computer-based personnel system which is under modification to meet Agency specific needs.

Application Name:	**District Database (DST)**
Software:	COBOL
Hardware:	Amdahl 5890
Location:	Technology Applications/TEA
Batch/On-line Status:	Batch
Application Description:	District Database is a widely used system that maintains the Agency's demographic information base about the county districts and campuses. Its data is used by every part of the Agency for such THINGS as developing the Texas School Directory, creating mailing labels, providing bank codes for payment, and supporting other applications needing awareness of district codes and names.

Application Name:	**Teacher and College Preparatory Tests recording and tracking (TCT)**
Software:	CA-IDEAL
Hardware:	Amdahl 5890
Location:	Technology Applications/TEA
Batch/On-line Status:	On-Line and Batch
Application Description:	System which records the results of all state mandated tests required of individuals preparing for Teacher Certification.

Texas Education Agency



ATTACHMENT I

Office of the Commissioner appears on Side Two.

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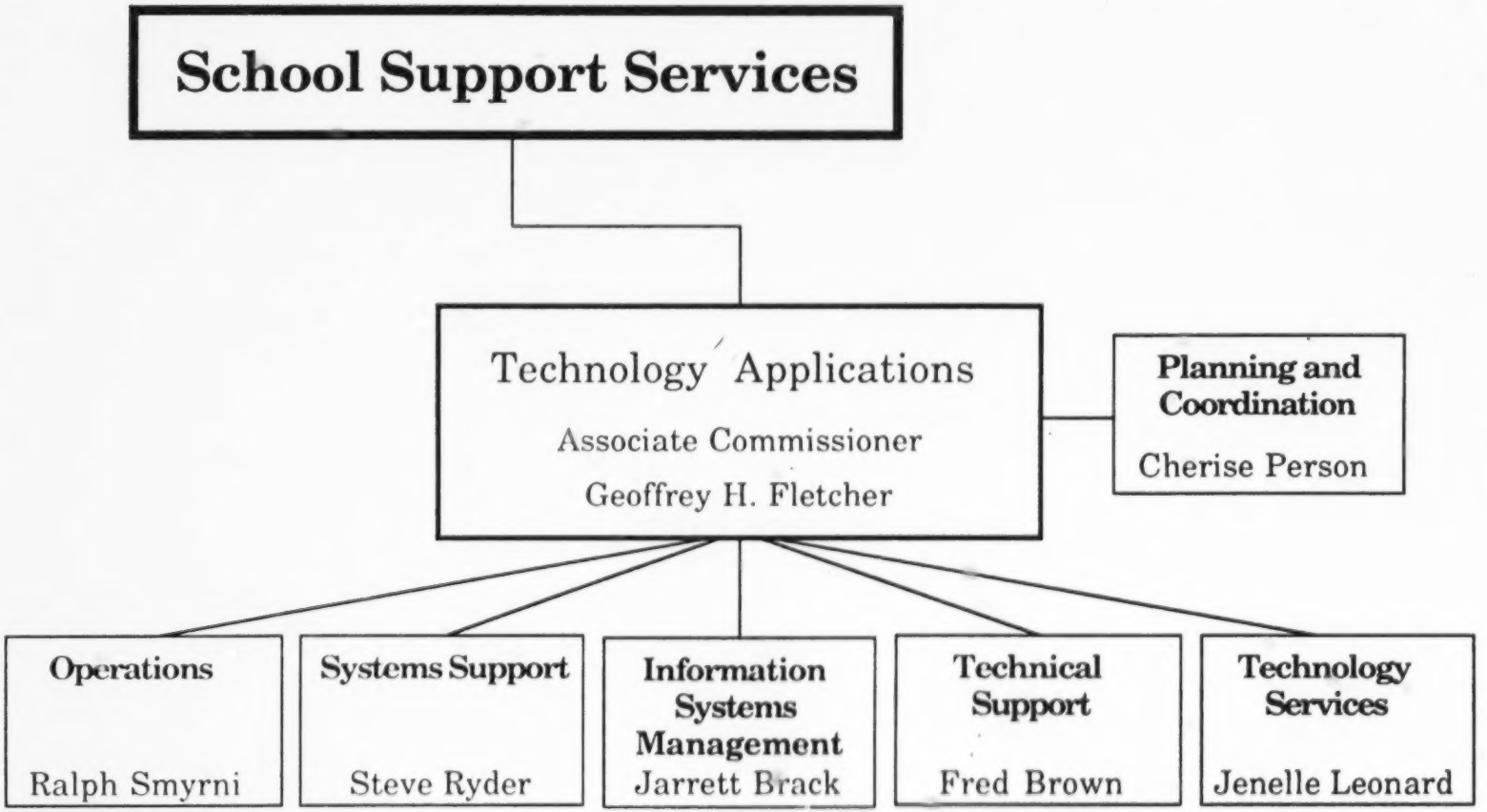

ATTACHMENT 11

EDSH008 TEXAS EDUCATION AGENCY
11/17/92 16:16 TOTAL BY JOB CLASSIFICATION FOR 72X COST CENTER PAGE 1

ATTACHMENT III

SAL GRD	CLASS	POSITION TITLE	-720-	-721-	-722-	-723-	-724-	-725-	-ALL-
29	A036	ASSOCIATE COMM	1						1
25	S011	SENIOR DIVISION DIR			1	1		1	3
21	1545	DIVISION DIRECTOR		1			1		2
21	0519	PLANNER IV	1						1
21	0280	DATABASE ADMIN IV	1						1
21	0270	SYSTEMS PRGRMR III			3				3
21	0260	SYSTEMS ANALYST IV	2		1				3
21	0253	PGMR ANALYST III				2			2
20	1557	DIR OF PROGRAMS I						3	3
20	0279	DATABASE ADMIN III	1						1
20	0269	SYSTEMS PRGRMR II			3				3
20	0264	SYSTEMS ANALYST III	1			3	4		8
20	0252	PROG ANALYST II				2			2
19	7005	EDUCATIONAL PROG DIR						1	1
19	5513	PROGRAM SPEC II						1	1
18	7022	EDUCATION SPEC II						4	4
18	7016	ADMIN PROG SPEC II						2	2
18	1861	COORD INFO MEDIA						1	1
18	0284	TELECOM SUPERVISOR			1				1
18	0262	SYSTEM ANALYST II	2	1	1	4	6		14
18	0251	PROG ANALYST I			1	9	3		13
18	0234	ADP SUPERVISOR Iv		1					1
16	1867	EDUCATIONAL WRITER				1	1		2
16	0277	DATABASE ADMIN I	1						1
16	0260	SYSTEMS ANALYST I		1			1		2
16	0254	SYSTEMS SUPP SPEC IV			2				2
16	0241	ADP PROGRAMMER II			1	11			12
16	0233	ADP SUPERVISOR III		2			1		3
15	1582	TECHNICAL WRITER					1		1
14	1891	AUDIO VISUAL TECH II						2	2
14	0240	ADP PROGRAMMER I		1		2			3
13	1503	ADMIN TECHNICIAN III	1				1		2
12	1812	STATISTICIAN II					3		3
12	0239	ADP PROGRAMER APPREN				1			1
11	1502	ADMIN TECHNICIAN II	1			1	1	1	4
11	0225	ADP EQUIP OPERAT III		3					3
11	0213	DATA ENTRY SUPV II		1					1
10	0206	DATA ENTRY OP IV		2					2
09	0246	ADP REC CNT CLRK III		1					1
09	0223	ADP EQUIP OPERAT II		4					4
09	0138	ADMIN SECRETARY		1	1	1	1	1	5
08	1501	ADMIN TECHNICIAN I					1	1	2
08	0205	DATA ENTRY OP III		5					5
			12	24	15	38	25	18	132

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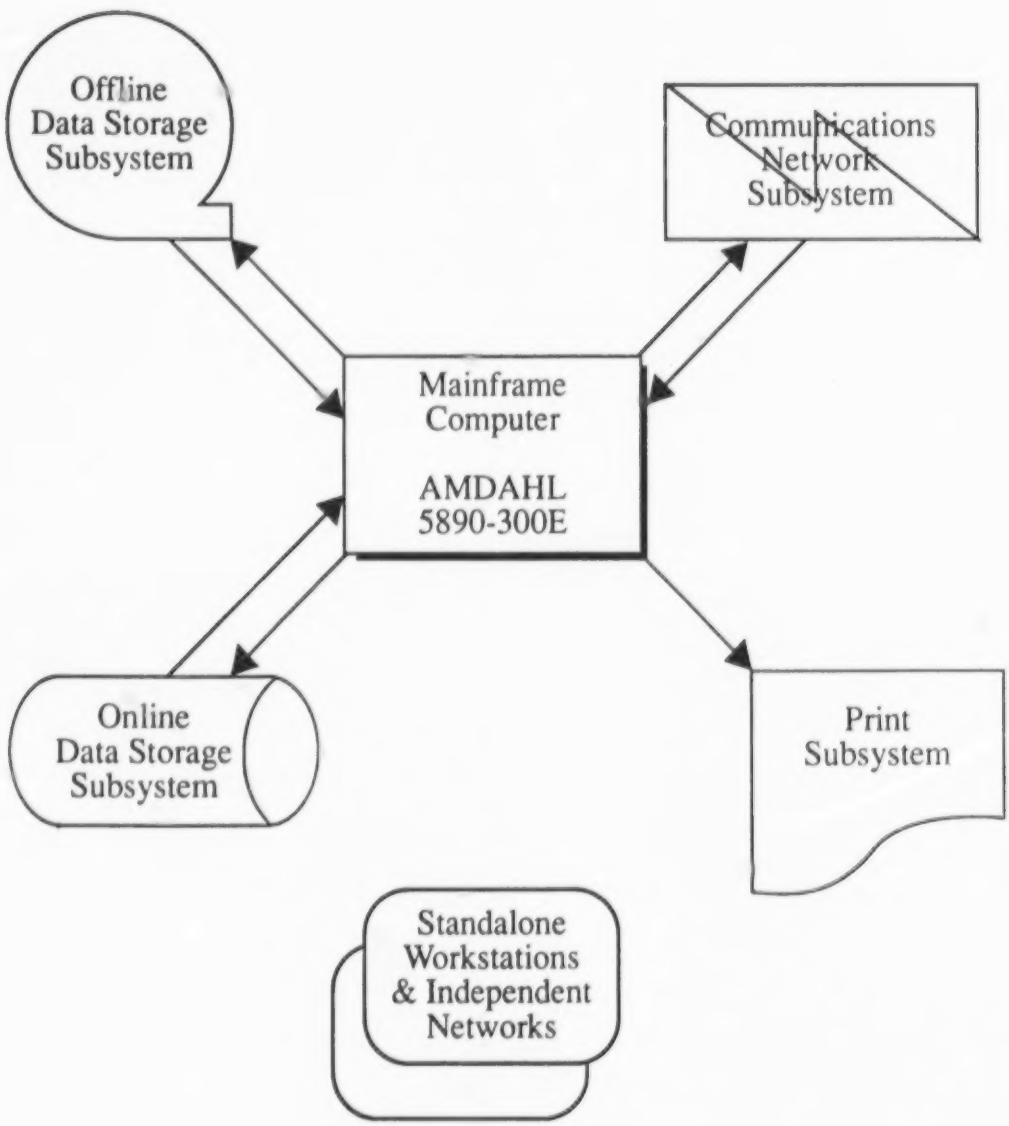
ATTACHMENT IV

System Overview



ATTACHMENT V
MAINFRAME SPECIFICATIONS

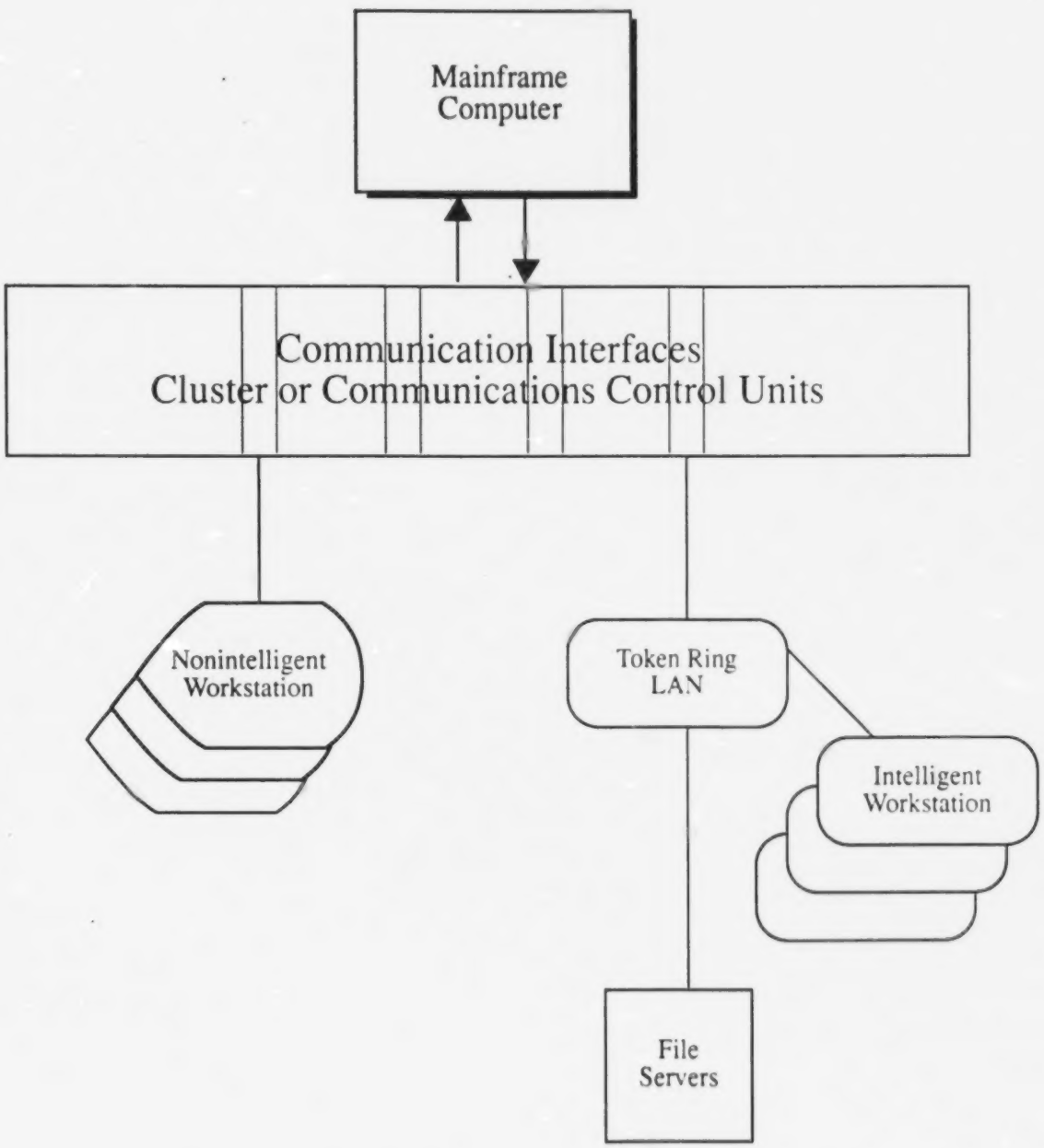
AMDAHL 5890-300E

CHARACTERISTICS

OPERATING SYSTEM	MVS/ESA
ACTIVE INTERNAL MEMORY	160 Million Bytes (Megabytes)
PROCESSING RATE	42 Million Instructions per Second
NUMBER OF CHANELS	32
DIRECT ACCESS STORAGE	140 Billion Bytes (GigaBytes)

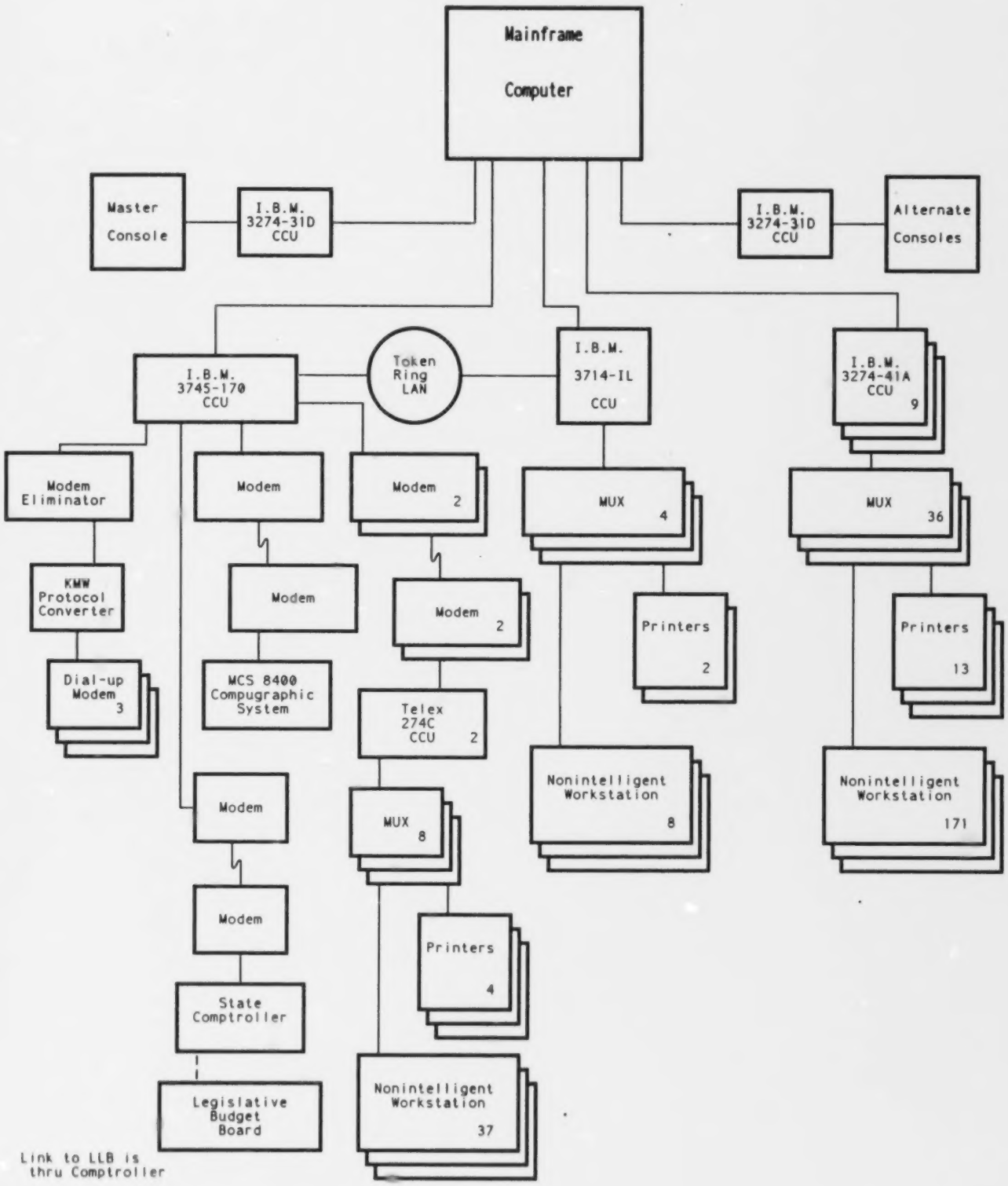
ATTACHMENT VI

Communications Network Subsystem Overview



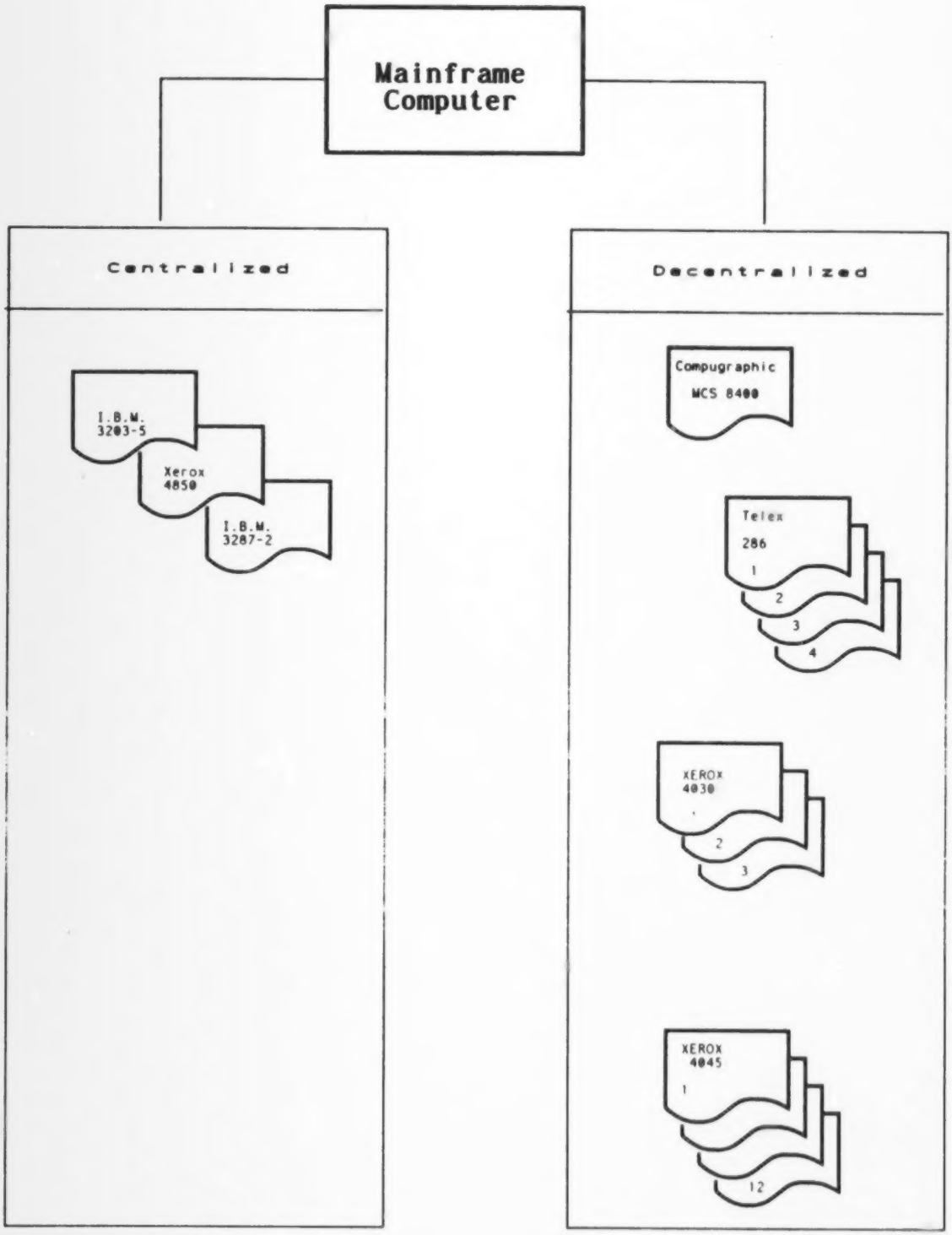
ATTACHMENT VII

Communications Subsystem



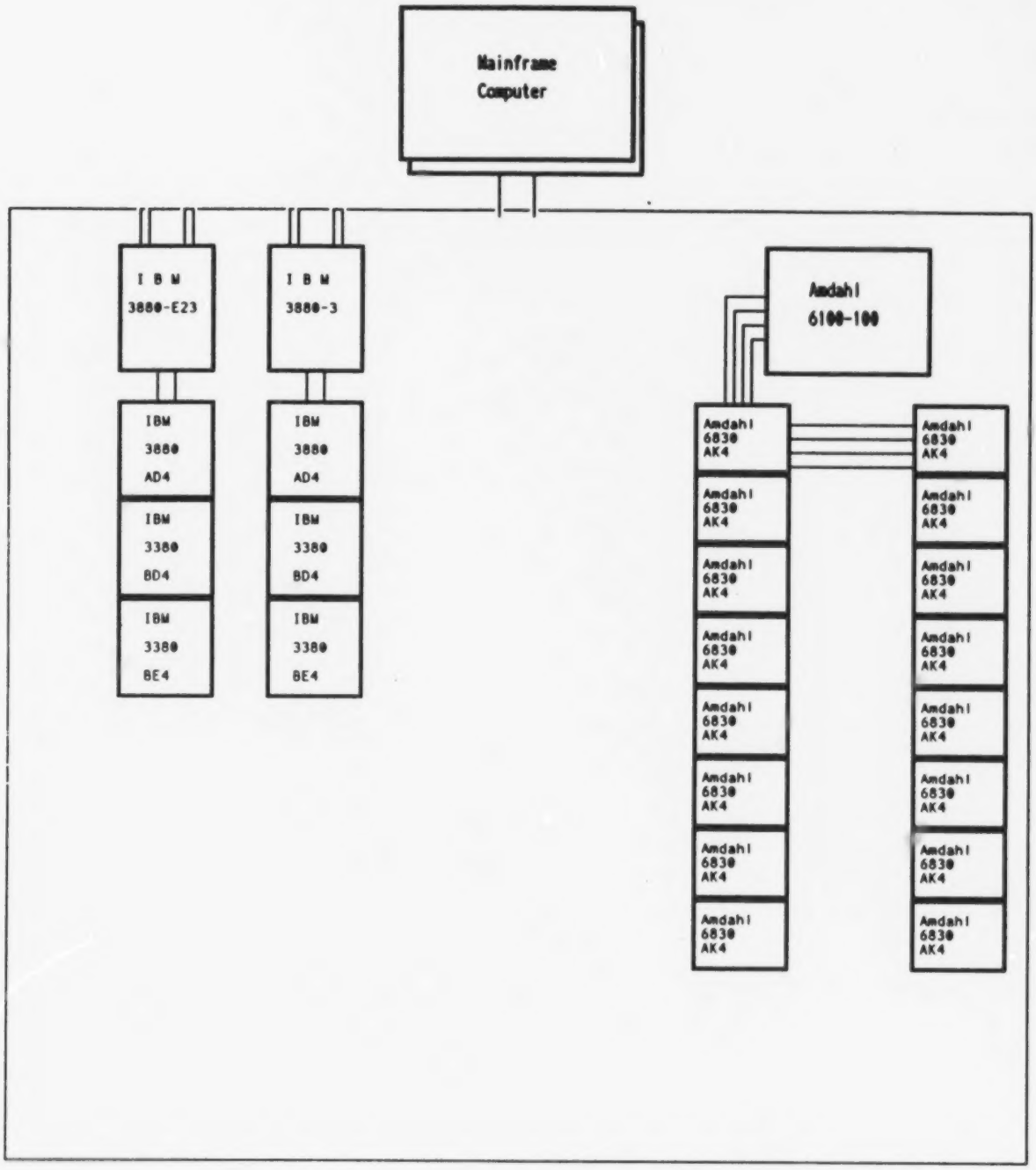
ATTACHMENT VIII

Print Subsystem



ATTACHMENT IX

On-Line Data Storage Subsystem



Device	Qty	Capacity (each)	Capacity (total)
IBM 3380 -xD4	4	2.5 GB	10 GB
IBM 3380 -xE4	2	5.0 GB	10 GB
Amdahl 6380 -xK4	16	7.5 GB	120 GB
			140 GB*

*GB=Gigabytes (1 billion bytes)

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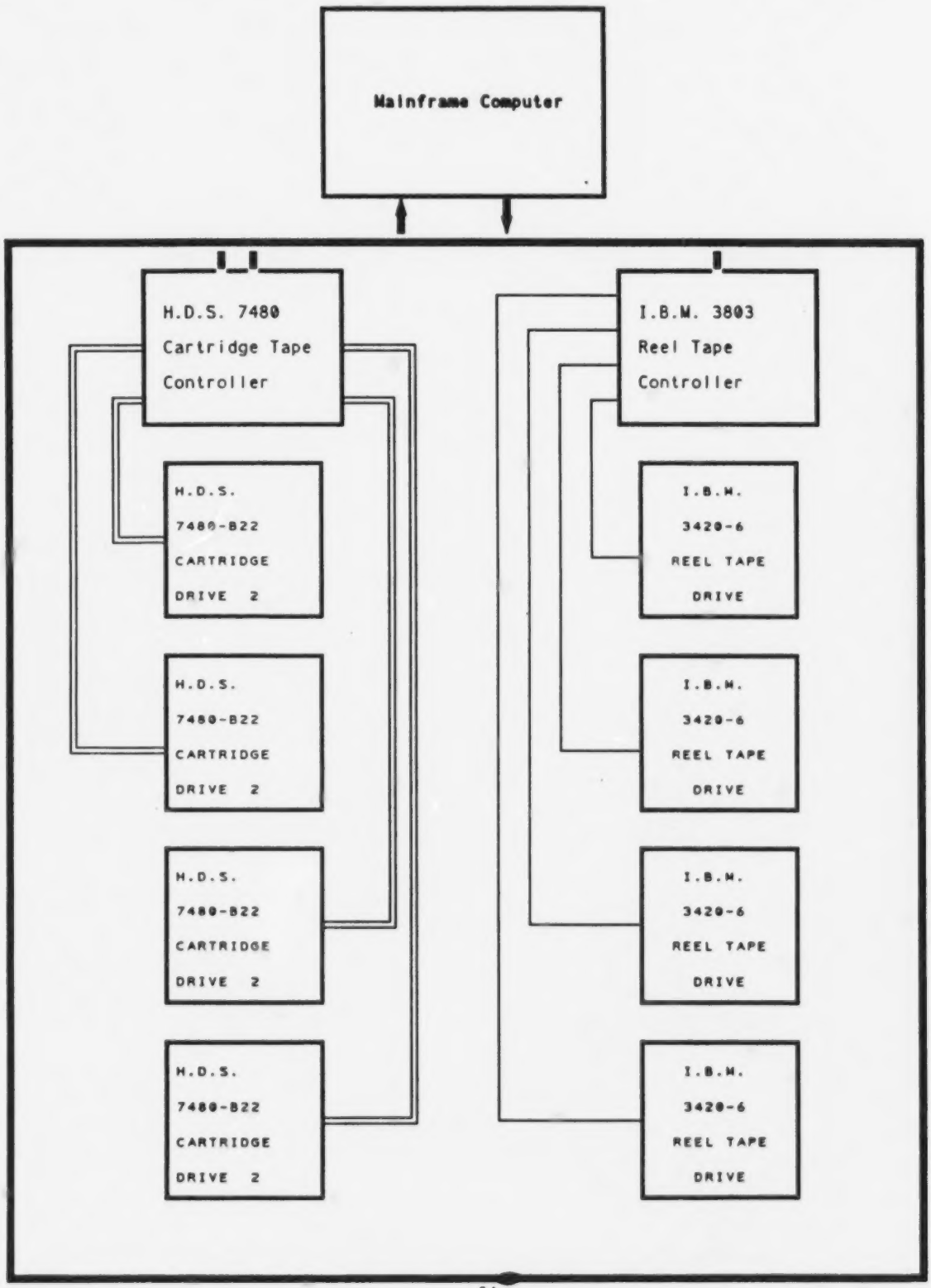
ATTACHMENT X

SUMMARY OF DIRECT ACCESS STORAGE DEVICE (DASD) UTILIZATION
(BY "POOL" NAME AS OF DECEMBER 31, 1992)

IBM 3380 AD4/ BD4	IBM 3380 BE4	AMD 6380 AK4/ BK4	GigaBytes 1992	GB 1991	% Change	Storage Group or POOL name
5		4	10.71	13.23	-19.05%	SGPROD -- Production
	2	8	17.64	11.34	55.56%	SGTEAD -- Client Data
	1	2	5.04	5.67	-11.11%	SGTEMP -- Temporary
2	3	16	35.28	36.54		DB2 -- DB2 DataBase Data
		16	30.24	0	79.31%	SGDB -- SMS Controlled
1		10	19.53	15.12	29.17%	SGPEIMS+SGLARGE -- PEIMS
		1	1.89	1.89	.00%	LIB -- Program Libraries
8	2	7	20.79	11.97	73.68%	SYS -- Operating System
16	8	64	141.12	95.76	47.37%	

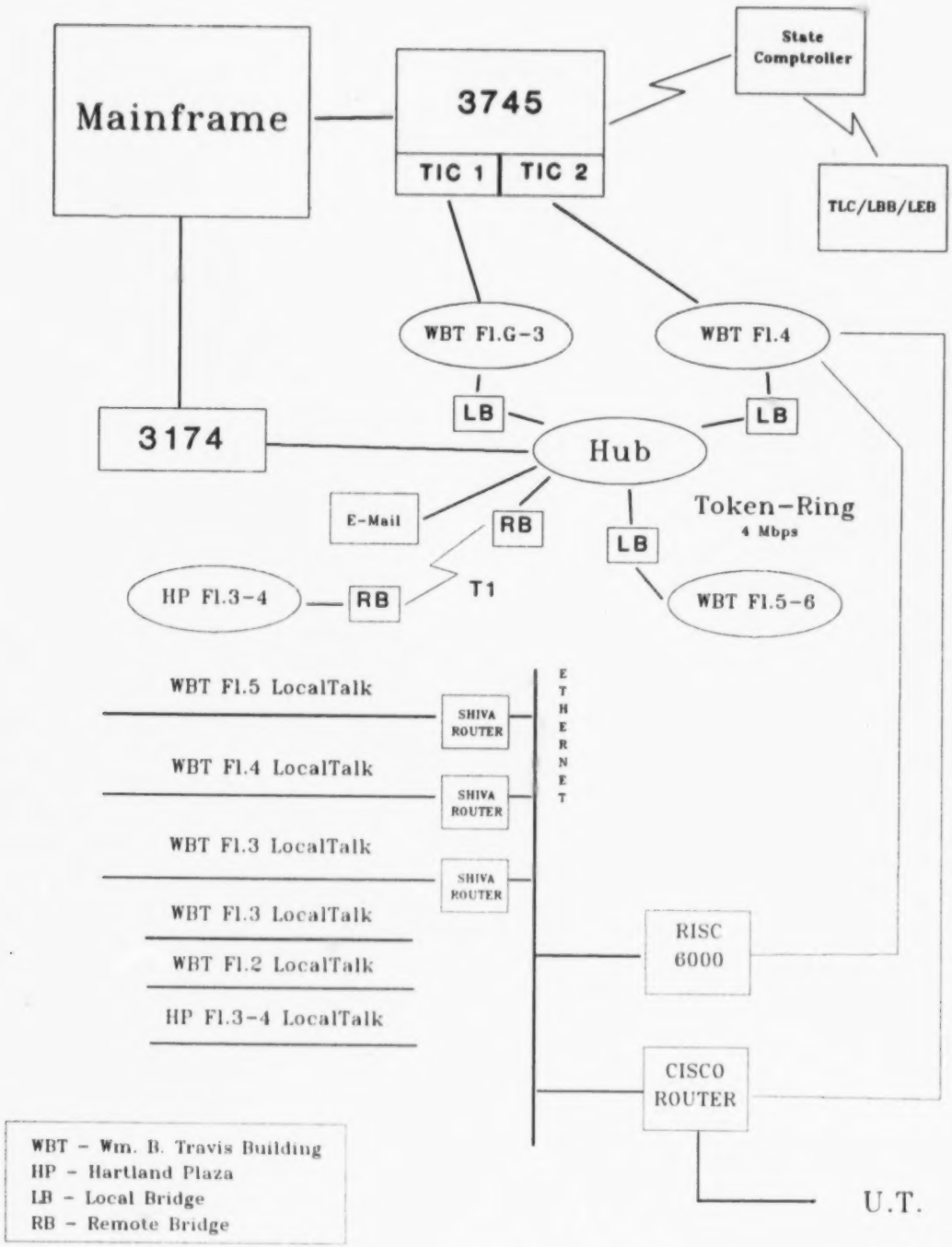
Off-Line Storage Subsystem

ATTACHMENT XI



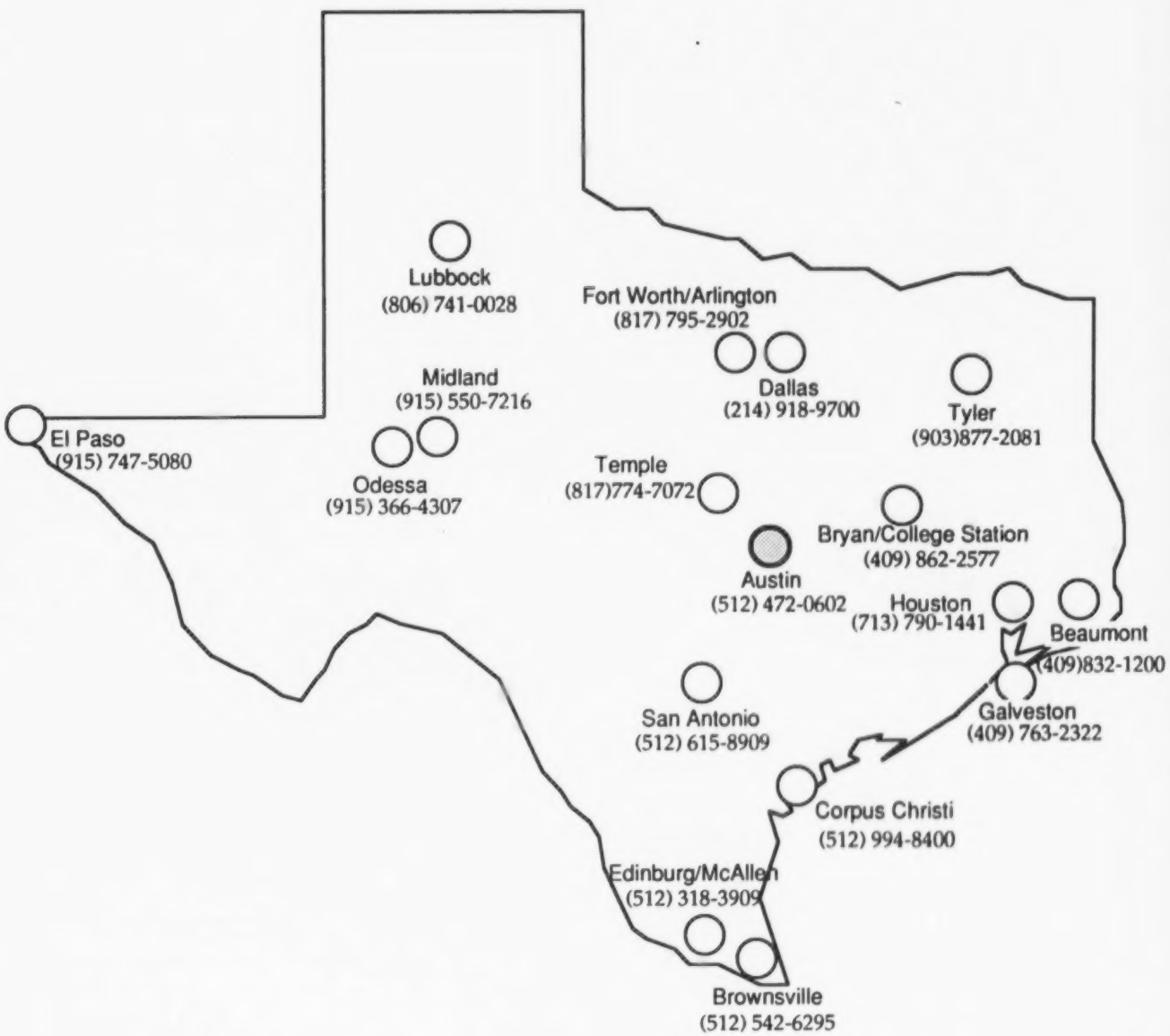
ATTACHMENT XII

TEA NETWORK



ATTACHMENT XIII

Texas Education Network (TENET)
Local Dial-in Pools



TENET local dial-in areas

TENET local dial-in areas with MPS nodes

COMPLIANCE STATEMENT

TITLE VI, CIVIL RIGHTS ACT OF 1964; THE MODIFIED COURT ORDER, CIVIL ACTION 5281, FEDERAL DISTRICT COURT, EASTERN DISTRICT OF TEXAS, TYLER DIVISION

Reviews of local education agencies pertaining to compliance with Title VI Civil Rights Act of 1964 and with specific requirements of the Modified Court Order, Civil Action No. 5281, Federal District Court, Eastern District of Texas, Tyler Division are conducted periodically by staff representatives of the Texas Education Agency. These reviews cover at least the following policies and practices:

(1) acceptance policies on student transfers from other school districts;

(2) operation of school bus routes or runs on a non-segregated basis;

(3) nondiscrimination in extracurricular activities and the use of school facilities;

(4) nondiscriminatory practices in the hiring, assigning, promoting, paying, demoting, reassigning, or dismissing of faculty and staff members who work with children;

(5) enrollment and assignment of students without discrimination on the basis of race, color, or national origin;

(6) nondiscriminatory practices relating to the use of a student's first language; and

(7) evidence of published procedures for hearing complaints and grievances.

In addition to conducting reviews, the Texas Education Agency staff representatives check complaints of discrimination made by a citizen or citizens residing in a school district where it is alleged discriminatory practices have occurred or are occurring.

Where a violation of Title VI of the Civil Rights Act is found, the findings are reported to the Office for Civil Rights, U.S. Department of Education.

If there is a direct violation of the Court Order in Civil Action No. 5281 that cannot be cleared through negotiation, the sanctions required by the Court Order are applied.

TITLE VII, CIVIL RIGHTS ACT OF 1964 AS AMENDED; EXECUTIVE ORDERS 11246 AND 11375; TITLE IX, EDUCATION AMENDMENTS; REHABILITATION ACT OF 1973 AS AMENDED; 1974 AMENDMENTS TO THE WAGE-HOUR LAW EXPANDING THE AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967; VIETNAM ERA VETERANS READJUSTMENT ASSISTANCE ACT OF 1972 AS AMENDED; AMERICAN DISABILITIES ACT OF 1990; AND THE CIVIL RIGHTS ACT OF 1991.

The Texas Education Agency shall comply fully with the nondiscrimination provisions of all Federal and State laws and regulations by assuring that no person shall be excluded from consideration for recruitment, selection, appointment, training, promotion, retention, or any other personnel action, or be denied any benefits or participation in any educational programs or activities which it operates on the grounds of race, religion, color, national origin, sex, handicap, age, or veteran status or a disability requiring accommodation (except where age, sex, or handicap constitute a bona fide occupational qualification necessary to proper and efficient administration). The Texas Education Agency is an Equal Employment Opportunity/Affirmative Action employer.

Texas Education Agency
1701 North Congress Avenue
Austin, Texas 78701-1494

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